

## **Exhibit N**

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**A MULTI-METHOD EVALUATION OF  
POLICE USE OF FORCE OUTCOMES:  
FINAL REPORT TO THE  
NATIONAL INSTITUTE OF JUSTICE**

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## TABLE OF CONTENTS

<b><u>SECTION 1 INTRODUCTION</u></b>	<b>1-1</b>
OVERVIEW OF METHODS	1-3
ORGANIZATION OF REPORT	1-4
<b><u>SECTION 2 LITERATURE ON POLICE USE OF FORCE AND INJURIES</u></b>	<b>2-1</b>
USE OF FORCE AND INJURIES	2-3
SUSPECT INJURY	2-3
OFFICER INJURY	2-5
THE IMPACT OF LESS-LETHAL WEAPONS ON INJURIES	2-6
OC SPRAY	2-6
CONDUCTED ENERGY DEVICES	2-8
MEDICAL RESEARCH ON CEDS	2-9
CONTROLLED ANIMAL TRIALS	2-10
CONTROLLED HUMAN TRIALS	2-11
CASE REVIEWS	2-12
REFERENCES	2-15
<b><u>SECTION 3 THE NATIONAL SURVEY</u></b>	<b>3-1</b>
SURVEY METHODOLOGY	3-1
SURVEY INSTRUMENT	3-1
SAMPLING	3-2
STRATIFICATION	3-3
SAMPLE SIZE AND SELECTION	3-4
DATA COLLECTION	3-5
DATA WEIGHTS	3-5
SURVEY RESULTS	3-6
WEAPONS DEPLOYMENT	3-6
FORCE POLICIES	3-7
TRAINING	3-13
FORCE REPORTING/REVIEW	3-16
CONDUCTED ENERGY DEVICES (CEDS)	3-18
SUMMARY AND CONCLUSION	3-25
<b><u>SECTION 4 AGENCY-LEVEL ANALYSIS</u></b>	<b>4-1</b>
RICHLAND COUNTY SHERIFF'S DEPARTMENT (RCSD)	4-1
RCSD VARIABLES	4-2
RCSD MODELS	4-4
RCSD FINDINGS	4-5
MIAMI-DADE POLICE DEPARTMENT (MDPD)	4-9
MDPD VARIABLES	4-9
MDPD MODELS	4-11

MDPD FINDINGS	4-11
<b>SEATTLE POLICE DEPARTMENT (SPD)</b>	<b>4-14</b>
SPD VARIABLES	4-14
SPD MODELS	4-15
SPD FINDINGS	4-16
<b>SUMMARY AND CONCLUSION</b>	<b>4-18</b>
<b>REFERENCES</b>	<b>4-21</b>
<b>SECTION 5 MULTIAGENCY ANALYSIS</b>	<b>5-1</b>
<b>DATA AND LIMITATIONS</b>	<b>5-4</b>
TYPES OF VARIABLES AVAILABLE	5-5
MEASUREMENT OF VARIABLES	5-7
UNIQUE OFFICER AND SUSPECT IDENTIFIERS	5-9
<b>NATURE OF THE ANALYSIS</b>	<b>5-10</b>
SUMMARY OF MEASURES	5-11
ANALYTIC STRATEGY	5-15
RESULTS	5-17
LIMITATIONS	5-21
<b>SUMMARY AND CONCLUSION</b>	<b>5-23</b>
<b>REFERENCES</b>	<b>5-25</b>
<b>SECTION 6 LONGITUDINAL ANALYSIS</b>	<b>6-1</b>
<b>QUASI-EXPERIMENTAL APPROACH FOR ASSESSING THE EFFECT OF CEDS ON INJURIES</b>	<b>6-1</b>
SAMPLE DESCRIPTION	6-2
TIME TRENDS	6-4
ANALYTIC STRATEGY	6-6
RESULTS	6-7
<b>SUMMARY AND CONCLUSION</b>	<b>6-9</b>
<b>REFERENCES</b>	<b>6-10</b>
<b>SECTION 7 INTERVIEWS WITH OFFICERS AND SUSPECTS</b>	<b>7-1</b>
<b>INTERVIEW METHODS</b>	<b>7-1</b>
RCSD	7-2
CPD	7-3
SUSPECTS	7-3
<b>QUALITATIVE ANALYSIS</b>	<b>7-4</b>
<b>FINDINGS</b>	<b>7-5</b>
RCSD	7-5
CPD	7-7
<b>SUMMARY AND CONCLUSION</b>	<b>7-9</b>
<b>REFERENCES</b>	<b>7-11</b>

## **SECTION 8 IMPLICATIONS**

**8-1**

<b>CORRELATES WITH INJURIES</b>	<b>8-1</b>
PHYSICAL FORCE	8-1
SUSPECT RESISTANCE	8-1
PEPPER SPRAY	8-2
CEDS	8-2
OTHER SITUATIONAL AND INDIVIDUAL CASE CHARACTERISTICS	8-3
<b>PLACEMENT OF OC SPRAY AND CEDS ON LINEAR FORCE CONTINUUM</b>	<b>8-4</b>
<b>POLICY AND TRAINING ISSUES RELATED TO CEDS</b>	<b>8-5</b>
<b>DIRECTIONS FOR FUTURE DATA COLLECTION AND RESEARCH</b>	<b>8-7</b>
<b>REFERENCES</b>	<b>8-12</b>

## **APPENDICES**

<b>FOCUS GROUP PARTICIPANTS</b>	<b>APP. A</b>
<b>USE OF LESS LETHAL FORCE SURVEY</b>	<b>APP. B</b>
<b>REGIONS OF THE U.S.</b>	<b>APP. C</b>
<b>SAMPLE SELECTED WITH PERCENTAGES BY POPULATION STRATA</b>	<b>APP. D</b>
<b>STRATA INFORMATION USED TO CALCULATE WEIGHTS</b>	<b>APP. E</b>

## SECTION 1

### INTRODUCTION

This exploratory study was primarily concerned with the investigation of factors related to injuries that may occur to police officers and citizens during use of force events. Previous studies have shown that 1-2 percent of police-citizen contacts involve the threat or application of physical force by the police, while 15-20 percent of arrests may result in the use of force by police to control a resistant suspect. Most applications of force are low level, however, and involve the use of an officer's hands, arms, and body to push or pull against a suspect to gain control. Of course, not all force is minor and officers are trained and equipped to use a variety of force techniques and weapons to overcome resistance, including less lethal devices such as pepper spray, batons, or Tasers, as well as firearms to defend themselves or others against threats of death or serious bodily injury. Various legal and policy restrictions govern the use of force by police, beginning with the 4<sup>th</sup> Amendment's prohibition against unreasonable searches and seizures and devolving downward to state statutes and departmental policies that govern how and under what conditions officers may use force. In most law enforcement agencies today, the use of force is tightly controlled by policy, and more serious applications of force are reviewed and/or investigated by supervisory personnel or internal affairs units.

Whenever physical force is threatened or used the police, the possibility of injury arises to citizens and officers. Until recently, though, little research had been done on the frequency, causes, or correlates of force-related injuries. In the present study, injury rates to citizens when force was used ranged from 17 to 64 percent (depending upon the agency reporting), while injury rates among officers ranged between 10 and 20 percent. Although in many cases agency-supplied injury data did not allow for a detailed analysis of the nature or seriousness of the injuries reported, data from agencies such as the Miami-Dade County Police Department indicated that injuries were typically minor (bruises, strains, abrasions). Among the 414

suspects injured in the Miami-Dade data, 73 (18%) received injuries categorized as “major” (dog bites, punctures, broken bones, internal injuries, or gunshot wounds), while the remainder suffered minor injuries.

Regardless of their frequency or severity, though, all injuries must be taken seriously. When police in a democracy use force against a free citizenry and injury results, concern over police abuse arises, litigation often ensues, and public legitimacy is threatened. Practically speaking, injuries cost money, either in medical bills for indigent suspects, worker’s compensation claims for injured officers, or compensatory damages paid out in legal settlements or judgments. Over the last 10-20 years, new technologies have emerged that offer the promise of more effective control over resistive suspects with fewer or less substantial injuries. Oleoresin capicum (OC or pepper) spray was among the first of these “new” less lethal weapons to achieve widespread adoption by police forces, while more recently conducted electrical devices (CEDs) such as the Taser have gained popularity.

CEDs generally, and Tasers in particular, have proliferated in recent years. Industry estimates now place the Taser in the hands of more than 11,500 police agencies nationwide. Other sources offer different numbers but it is clear that thousands of agencies have purchased Tasers for their officers. As did pepper spray, Tasers have generated controversy and have been associated with in-custody deaths and allegations of overuse and even intentional abuse. Of key interest to policy-makers and law enforcement officials are questions of whether Tasers are safe and effective and where (if at all) they should be placed on force continua that attempt to match appropriate police force options with levels of suspect resistance.

### **Overview of Methods**

Funded by the National Institute of Justice to the University of South Carolina in January 2006, this research project on police use of force set out to contribute to our understanding of how and why injuries occur to police and citizens during use of force events. Although much is known about how frequently and under what conditions police use force, comparatively little is

known about the causes and correlates of use of force-related injuries, and even less is known about the impact on injuries of emerging less lethal weapon technologies such as the Taser. In order to accomplish the project's main objective, several complementary research strategies were used. First, a nationally representative survey of U.S. law enforcement agencies was conducted to provide a snapshot of how less lethal force technologies, training, and policies are being used by state and local agencies. Second, agency-supplied use of force datasets from three agencies – Seattle, Washington, Miami-Dade, Florida, and Richland County, South Carolina – were analyzed separately in an effort to identify individual and situational predictors of injuries to officers and citizens during use of force events. Third, more than 24,000 use of force records from 12 police agencies were combined and analyzed using multilevel and fixed effects models to investigate the relationship between situational and policy-related factors and the likelihood of injury to police and citizens. Fourth, a longitudinal analysis was conducted that explored the effect on injury rates of the adoption of the Taser by the Austin, Texas and Orlando, Florida police departments. Finally, in effort to provide context to the quantitative analyses and gain insight into how use of force encounters unfold, in-depth interviews were conducted with more than 250 officers and 25 citizens who were involved in use of force events in two mid-size law enforcement agencies, one of which issued the Taser to its officers and one of which did not.

### **Organization of Report**

This report is divided into eight chapters. Following this introduction, Chapter 2 presents an overview of the extant literature and what is currently known about how injuries occur in violent encounters between police and citizens. The methodology and results from each analytic component of the study are presented in Chapters 3-7. Chapter 3 discusses how the national survey was conducted and what was learned about less lethal technologies, policies, training, and use of force data collection mechanisms in U.S. law enforcement agencies. Chapter 4 presents the results from the three agency-level datasets that were analyzed (Seattle,

Miami-Dade, Richland County) and what incident-level variables influenced injury outcomes in those jurisdictions. In Chapter 5, we discuss the multiagency analysis that brought together more than 25,000 use of force records from 12 agencies and examined both policy-related and incident-level predictors of injuries. Chapter 6 presents the results from the longitudinal analysis of injury data in Orlando and Austin and discusses the effect that the decision to adopt the Taser had on officer and suspect injuries in the two cities. Chapter 7 reports on the findings from our interviews with officers and suspects involved in actual use of force encounters and what factors may have contributed to their injuries. Finally, Chapter 8 of the report discusses the implications of our findings for policy, training, and future research.

## SECTION 8

### IMPLICATIONS FOR POLICY, TRAINING, AND FUTURE RESEARCH

In this section, we discuss the implications of our findings for policy and training. We discuss the factors that we found to be correlated with injuries to police and citizens and what those findings mean for police practices. Because of their controversial nature and widespread use, we discuss CEDs in detail and make recommendations, based on our findings, for whether or how they should fit into the range of less lethal force alternatives available to the police. Finally, we set out an agenda for future researchers to consider that will help address some of the questions left unanswered by this study.

#### Correlates with Injuries

##### ***Physical Force***

Our findings clearly show that the use of physical force and hands-on control increase the risk of injury to officers and citizens. In Richland County, South Carolina, soft empty-hand control significantly increased the odds of injury to officers, while hard empty hand control increased the risk of injury to suspects. In Miami-Dade, both types of physical force increased the risk of injury and to both officers and citizens. In Seattle, the use of physical force increased the risk of injury to officers but *not* to citizens, while the multiagency analysis showed an increased risk of injury to citizens and *especially* to officers associated with physical force. This increased risk was not trivial. When controlling for the use of CEDs and OC spray in the multiagency analysis, using physical force increased the odds of injury to officers by more than 300 percent and to suspects by more than 50 percent.

##### ***Suspect Resistance***

Not surprisingly, increasing levels of suspect resistance were associated with an increased risk of injury to officers and suspects. The increased risk of injuries was especially acute for officers. In Richland County, active aggression and threats of deadly force increased

the odds of officer injury (by more than 100%), while passive and defensive resistance did not. Actively aggressive resistance increased the odds of suspect injury as well. In Miami-Dade County, the likelihood of officer injury increased 160 percent with each unit increase in suspect resistance, while a unit change in suspect resistance in Seattle increased the odds of officer injury by 80 percent. The likelihood of suspect injury associated with higher levels of resistance increased at a much lower rate in Miami-Dade than the likelihood of officer injury, and the odds of suspect injury in Seattle were unchanged with increased levels of resistance. These findings suggest that officers, rather than suspects, bear the brunt of the increased risk of injury when suspects resist at higher levels.

### ***Pepper spray***

The findings regarding OC spray suggest that at least for suspects, the use of OC spray reduces the probability of injury. In Richland County, the use of OC spray reduced the odds of suspect injury by 70 percent but had no effect on officer injuries. In Seattle, the use of OC spray had no effect on injuries to either officers or suspects. However, in the multiagency models, the use of OC spray reduced the probability of injury to suspects by 70 percent, which was even more than the injury reduction observed with CEDs (see below). For officers, the use of OC spray increased the probability of injury by 21 to 39 percent (depending upon the model). This finding was unexpected and suggests that cases involving the use of OC spray differ from those involving CEDs in ways that were not accounted for in the models. Further research is needed on the temporal ordering of force and resistance and how officers choose to use OC spray versus CEDs.

### ***CEDs***

With the exception of Richland County where its effects were non-significant, the use of CEDs substantially decreased the likelihood of injuries to suspects. In Miami-Dade, the odds of a suspect being injured were almost 90 percent lower when a CED was used than when it was not. Similarly, the odds of suspect injury went down (by almost 50%) when CEDs were used in

Seattle. The multiagency models also show a reduction in suspect injuries associated with CED use. Across 12 agencies and more than 24,000 use of force cases, the odds of a suspect being injured decreased by almost 60 percent when a CED was used. In Richland County, SC Seattle, and in the multiagency models, the use of the Taser had no effect on the probability of officer injuries, while in Miami-Dade, officer injuries were less likely to have occurred when the Taser was used. Overall, the injury findings related to CEDs were robust across agencies and across time. Controlling for other types of force and resistance, the use of CEDs significantly reduced the probability of injuries.

The adoption of CEDs by the Orlando, Florida and Austin, Texas police departments reduced injuries to suspects *and* officers over time. Pre-post injury analyses revealed lower injury rates for both groups after the Taser was introduced in the two agencies as a less lethal force option. These findings held even though use of force rates *increased* in Orlando and *decreased* in Austin over the study period.

#### ***Other situational and individual case characteristics***

Aside from officer force and suspect resistance variables, few other factors were correlated with injury outcomes. In the Miami-Dade models, which included suspect gender as a variable, male suspects were twice as likely as females to be injured in a use of force event. The same held true for male suspects in the multiagency models. Also in the multiagency models, the presence of a male suspect slightly increased the risk of injury to officers when compared to female suspects. In Seattle, officer gender was available for inclusion in the models, and female officers proved more than twice as likely as male officers to be injured. Given the average size and strength differential between males and females, as well as the greater involvement of males in crimes of violence, none of these findings is surprising.

### Placement of OC Spray and CEDs on a Linear Force Continuum

In light of the findings from the present study on the relationship between various police use of force options, suspect resistance, and injuries to police and citizens, the placement of OC spray and CEDs on a linear force continuum (used by more than half of the agencies surveyed) should be carefully considered. Research on the use of force by police, including the results from the current study, consistently shows that most use of force encounters involve no more than defensive efforts by suspects to resist physical control. A typical resistance scenario involves an initial refusal by a suspect to comply with police commands followed by the suspect pushing or pulling against an officer's attempt to physical gain control and apply handcuffs. According to our interviews with officers, many of these "wrestling matches" end up with the suspect and officer on the ground and the officer trying to use the ground for leverage. The single and multiagency injury models, though, clearly show the increased risk for injury that such physical struggles carry with them. Furthermore, although suspects are injured more frequently than officers in use of force encounters, the increased risk for injury associated with soft empty hand control attempts is borne disproportionately by the police.

In juxtaposition to these observations, our findings consistently show a significant reduction in the risk of injury to suspects when CEDs or OC spray is used. This should not be surprising, as these weapons allow officers to control suspects from a distance without engaging in the hand-to-hand struggles that typically cause injuries. However, these weapons are not painless or risk-free. Tasers barbs often cause small punctures or superficial burns, and OC spray causes an intense burning sensation and irritation of the skin and mucous membranes. In very rare cases, people have died after being pepper sprayed or shocked with a Taser, although no clear evidence exists that the weapons themselves caused the deaths

(National Institute of Justice, 2008; Petty, 2004). Also included in the risk/benefit calculus is the observation from our data that most injuries, either to officers or suspects, are minor and involve muscle strains, bruises, small cuts, or scrapes.

According to the survey results, 45 percent of agencies allow for the use of OC spray to overcome passive resistance (suspect sits down and refuses to comply with police commands), while another 20-30 percent of agencies authorize the use of a CED under these circumstances. When resistance increases to the typical defensive level (suspect tenses and pulls against officer's attempt at handcuffing), 82 percent of agencies authorize OC spray and about 60 percent allow for the use of a CED. Once the suspect's resistance level becomes threatening or assaultive, CED authorization increases to about 70 percent, while OC spray remains at about 85 percent.

If injury reduction is the primary goal, then agencies that authorize OC spray and/or CEDs to overcome defensive resistance are clearly at an advantage based upon the results from the current study. Both of these less lethal weapons help prevent or minimize physical struggles that cause injury (albeit relatively minor ones) to officers and citizens. Although both cause pain, they reduce injuries, and based on the present state of the medical research, death or serious harm associated with their use is extremely rare. In that sense, CEDs and OC spray are safe, and both are similarly effective at reducing the probability for injury. Both should be authorized as possible response alternatives to defensive (muscle tensing, struggling to escape physical control, fleeing on foot) or higher levels of suspect resistance. This recommendation not only is supported by our findings and observations about injuries but is presently followed by the majority of agencies that responded to the national survey.

### **Policy and Training Issues Related to CEDs**

The proliferation of CEDs in law enforcement agencies nationwide suggests that agencies see value in investing in this less lethal technology. At the incident level in our data, CEDs were used far more often (4-5 times more often) than OC spray among agencies that equipped their officers with CEDs and were sometimes used at rates that exceeded soft empty hand control. Unlike OC spray, CEDs do not require post-use decontamination and do not carry the risk of accidental overspray or "blow back" that often occurs when pepper spray is used.